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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/670,212

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Kimio Nakayama

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EXAMINER

MATZEK, MATTHEW D

ART UNIT

PAPER NUMBER

1794

NOTIFICATION DATE

DELIVERY MODE

05/15/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/670,212	<b>Applicant(s)</b> NAKAYAMA ET AL.	
	<b>Examiner</b> MATTHEW D. MATZEK	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,6-15 and 17-23 is/are pending in the application.
- 4a) Of the above claim(s) 13-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-12 and 17-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/14/2008 has been entered.

***Response to Amendment***

2. The amendment dated 2/14/2008 has been fully considered and entered into the Record. Claim 1 has been amended, but contains no new matter. Claims 1, 2, 4, 6-12 and 17-23 remain active and claims 13-15 are withdrawn. The previous rejections based upon the combination of Takeyama et al., Ashida et al., Mast and Dieterich have been withdrawn because Examiner had unnecessarily relied upon Ashida et al. to provide for the claimed diisocyanate component. Examiner will set forth new grounds of rejection and address Applicant's remarks below.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 2, 4, 6-8 and 17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeyama et al. (US 6,299,977) in view of Ashida et al. (JP 09059881) and Mast (US 4,914,764) and Dieterich (US 3,419,533).

a. Takeyama et al. teach an artificial leather (Abstract), nonwoven fabric, comprising fiber bundles having a single fineness of no greater than 0.2 denier (0.222 dtex) (col. 3, lines 15-18). The nonwoven fabric is impregnated with polyurethane

Art Unit: 1771

elastomer comprising a diisocyanate component (Applicant's polymer A with diisocyanate component) (col. 8, lines 25-43). Examiner equates the applied nonwoven fabric to the three-dimensional entangled body of Applicant. The polymer is impregnated in the range of 15-80% of the weight of the nonwoven fabric (col. 9, lines 10-14). This anticipates the ratio of the elastomeric polymer A to the three-dimensional entangled body in the limitation of claim 1. The surface of the artificial leather may contain naps of 40-300 microns, which anticipates the instantly claimed nap lengths (col. 11, lines 5-8). Example 2 is dyed via three different dyes, but Takeyama is silent as to the use of pigments and their quantities for use in coloring the artificial leather article. The new limitations set forth in amended claim 1 are obvious in view of Takeyama et al. because the applied reference discloses the use of the diisocyanate component, dicyclohexylmethane diisocyanate (col. 8, lines 25-47) and polyol component ethylene glycol (example 1). The reference teaches the generic genus, dicyclohexylmethane diisocyanate and as such it would have been obvious to have selected a specific specie of the genus (i.e. 4,4' dicyclohexylmethane diisocyanate) since the reference uses the isocyanate in the claimed manner. Furthermore, since the ethylene glycol in Takeyama et al. is used to react with the isocyanate to form polyurethane in the claimed manner it would have been obvious to have used polyethylene glycol instead of ethylene glycol because they are obvious variants of same compound. Takeyama et al. fail to teach the use pigments and their quantities in coloring artificial leather.

b. Ashida et al. teach the creation of suede-tone artificial leather comprising fiber bundles containing a black pigment reflecting infrared rays. The fiber bundles are made

of conjugate ultra-fine polyethylene or nylon fibers containing perylene black (an organic black pigment) in an amount of greater than or equal to 5 percent [structure, page 2]. A nonwoven web of the fiber bundles is impregnated with a polyurethane ratio of 70:30. The impregnant may contain pigments, such as carbon black, at levels ranging from 0.1 to 5 weight percent.

c. Since Ashida et al. and Takeyama et al. are from the same field of endeavor (i.e. artificial leather), the purpose disclosed by Ashida et al. would have been recognized in the pertinent art of Takeyama et al.

d. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have made the article of Takeyama et al. with the fiber pigments and percentages disclosed by Ashida et al. The skilled artisan would have been motivated by the desire to create an article that is capable of reflecting infrared rays (Abstract, Ashida et al.).

e. Mast et al. teach a bath pigmentation process to improve the light fastness of leather (Abstract). The pigments available for use include insoluble azo pigments (col. 2, lines 39-46), carbon black (col. 1, lines 8-17) and inorganic pigments. Mast et al. provide seven different pigment mixtures that consist of multiple pigments (col. 8, line 46-col. 9, line 8). The claimed particle sizes are provided for in the abstract. Water-based polyurethanes may be used for pre-fixation to assist in fixing the pigments into the leather (col. 3, lines 14-28).

f. Since Mast et al. and Takeyama et al. are from the same field of endeavor (i.e. colored leathers), the purpose disclosed by Mast et al. would have been recognized in the pertinent art of Takeyama et al.

g. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have made the article of Takeyama et al. with the pigments of Mast et al. motivated by the desire to obtain pigment penetration of the leather and improved light fastness (abstract).

h. With regards claims 1, 6 and 8, although the applied references do not explicitly teach the instantly claimed feature of the polyurethane's swelling rate or its color fastness, it is reasonable to presume that said property is inherent to combined applied article. Support for said presumption is found in the use of like materials (i.e. alicyclic diisocyanate polyurethane). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties of the polyurethane's swelling rate or its color fastness would obviously have been present one the combined product is provided. Reliance upon inherency is not improper even though rejection is based on Section 103 instead of Section 102. *In re Skoner, et al.* (CCPA) 186 USPQ 80.

i. Claim 7 is rejected as the size of the elastomeric polymer A particle cannot serve as a further limitation in the instantly claimed article as the elastomer melts and impregnates the nonwoven fabric and therefore loses its particle form in the fabricated article.

j. Claims 17-20 are rejected as the relative amount of carbon black is a result-effective variable affecting the blackness of the fibers [0008, page 7]. Consequently, absent a clear and convincing showing of unexpected results demonstrating the criticality of the claimed ratio, it would have been obvious to one of ordinary skill in the art to optimize this result-effective variable by routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

k. The disclosure of Ashida et al. is silent as to the size of the pigment particles. It is well known in the art of leather/artificial leather pigmentation that the particle sizes are within the instantly claimed ranges. Mast et al. demonstrate this, which teaches that pigments for the use of coloring leather are from 0.050 to 0.5 microns (Abstract). The reference explicitly mentions carbon black and azo pigments (col. 1, lines 8-12 and col. 2, lines 39-43).

l. Claims 21 and 22 are rejected as it would have been obvious to one of ordinary skill in the art at the time the invention was made to have impregnated the pigmented elastomer into the three-dimensional entangled body at either with or without a gradient in the thickness direction. The skilled artisan would have been motivated by the desire to create an article with varied aesthetics.

m. Dieterich discloses a polyurethane composition suitable for impregnating leather and binding pigments (abstract). The polyurethane is modified by the addition of sulfonium groups through a process called ternating (col. 4, lines 56-70), which imparts the composition with advantageous physical properties (col. 1, lines 52-63).

Dicyclohexylmethane diisocyanate is available as the diisocyanate component of the

Art Unit: 1771

polyurethane (col. 3, lines 51-52). Following terminating the polyurethane, the solvent may be completely replaced with water (col. 5, lines 43-54). Example 3 demonstrates how the water-dispersed polyurethane forms a transparent film substantially free from organic solvents. Pigments may be easily incorporated into the modified polyurethane (col. 6, lines 20-27).

n. Since Takeyama et al. and Dieterich are from the same field of endeavor (i.e. polyurethane impregnated leathers), the purpose disclosed by Dieterich would have been recognized in the pertinent art of Takeyama et al.

o. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the dicyclohexylmethane diisocyanate of Takeyama et al. with the sulfonium groups of Dieterich with the motivation of using a polyurethane that is elastic, non-sticky and water-insoluble as disclosed by Dieterich (col. 2, lines 14-19) in formation of the artificial leather.

4. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeyama et al. (US 6,299,977) in view of Ashida et al. (JP 09059881), Mast (US 4,914,764) and Dieterich (US 3,419,533) as applied to claim 1 above, and further in view of Higuchi et al. (4, 525,169).

a. The Takeyama et al., Ashida et al., Mast et al. and Dieterich references fail to teach the use of a pigmented coating layer or the lamination of another layer to the artificial leather article.

b. Higuchi et al. teach artificial grain leather having different color spot groups comprised of ultra fine fibers, in which at least one side of the fibrous substrate has two types of colors provided in a coating layer (Abstract). As demonstrated in Example 1



(col. 8, lines 58-61 and col. 9, lines 28-33) polyurethane with imbedded pigment may be used to impregnate the artificial leather at a level of 0.5 percent. Resins for use in the coating layer comprise polyurethane (polymer A), polyacrylic acid (polymer B), and polyvinyl chloride (polymer C) (col. 5, lines 43-49). The colored coating layer is made of a coating composition in which resins are mixed with pigments. The pigments should not make up more than 30% by weight of the coating (col. 5, lines 59-64). As the pigments are to make up 30% or less of the weight of the coating of the article of Higuchi et al., the pigments of the coating and impregnant together, necessarily meet the compositional limitations instantly claimed by Applicant. Example 3 teaches the use of carbon black (Pigment A), insoluble azo and disazo condensation pigments (Pigments B and C) in a polyurethane vehicle for the coating film layer and a multitude of dyes for the creation of a dyed fabric.

c. Since Takeyama et al. and Higuchi et al. are from the same field of endeavor (i.e. artificial leather), the purpose disclosed by Higuchi et al. would have been recognized in the pertinent art of Takeyama et al.

d. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to add pigments to the elastomer of Takeyama et al. motivated by the desire to create an artificial grain leather presenting an entirely new tint with quality appearance and having different color spot groups, which cannot be attained by natural leather (col. 1, lines 56-60).

e. Claim 9 is rejected as Higuchi et al. teach the use of pigments in the coating layer (col. 5, lines 59-64) and Takeyama et al. teach the addition of a surface layer comprising

elastomeric polymer, which is either the same kind or different kind from the impregnation polymer on the base material (nonwoven, napped fabric) (col. 21, lines 13-18). This results in a grained surface (col. 21, lines 13-15) rejecting claim 12. Claim 11 is rejected as Figure 3 illustrates a discontinuous surface coating resulting in a semi-grained article. Claim 10 is rejected as Higuchi et al. teach that the artificial leather article may be made of a laminate comprising woven, nonwoven and knitted fabrics (Claim 8).

### ***Response to Arguments***

5. Applicant's arguments filed 2/14/2008 have been fully considered but they are not persuasive.

6. Applicant argues that it is not clear why one of ordinary skill would combine Dieterich with the other applied art, and even if combined would not result in the claimed invention. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the dicyclohexylmethane diisocyanate of Takeyama et al. with the sulfonium groups of Dieterich with the motivation of forming a polyurethane that is elastic, non-sticky and water-insoluble as disclosed by Dieterich (col. 2, lines 14-19) in the formation of artificial leather. Applicant argues that amended claim 1 precludes the modification of the isocyanate of Takeyama et al. with the sulfonium groups. Examiner takes the position that Dieterich starts with 4-4'dicyclohexylmethane diisocyanate which is which is now recited in amended claim 1 and modifies it to contain the sulfonium groups. This does nothing to impact the fact that the diisocyanate and polyol components set forth in Takeyama et al. are still the building blocks for the polyurethane and that the 4-4'dicyclohexylmethane diisocyanate in Dieterich is the building

Art Unit: 1771

block of polyurethane in his disclosure, therefore, the polyurethane forming components as claimed would not be provided for in the applied references.

7. Applicant argues that Ashida uses polyurethane in an organic solvent that is coagulated in a porous state that would result in opaque polyurethane, which is precluded by the instant claims. Examiner has not relied upon Ashida's teaching of a specific polyurethane, but rather that polyurethane may be used in coordination with pigments. Examiner has relied upon Takeyama et al. and Dieterich to provide for the claimed polyurethane composition.

8. Applicant argues that since Mast et al. is directed to a process of bath pigmentation of already formed leather one of ordinary skill in the art would not look to Mast et al. to modify Takeyama et al. While compositions of real and artificial leather are different, it is desirable to form artificial leather that is similar to real leather. Therefore, one of ordinary skill in the art would look to Mast et al. to modify Takeyama et al. with the intent of forming a product that more closely resembles real leather and its aesthetics.

9. Applicant argues that Higuchi et al. do not remedy any of the deficiencies in the combination of Takeyama et al., Ashida et al. Mast et al. Examiner has not relied upon Higuchi et al. to reject claims 1, 2, 4, 6-8 and 17-23.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D. MATZEK whose telephone number is (571)272-2423. The examiner can normally be reached on M-F, 9-5:30.

Art Unit: 1771

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571.272.1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/  
Examiner, Art Unit 1794

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